What is claimed is:

1. A method for manufacturing a high k-dielectric oxide film, the method comprising:

(a) loading a semiconductor substrate in an ALD apparatus;

(b) depositing a reaction material having a predetermined composition rate of a first element and a second element on the semiconductor substrate; and

(c) forming a first high k-dielectric oxide film having the two elements on the semiconductor substrate by oxidizing the reaction material such that the first element and the second element are simultaneously oxidized.

2. The method of claim 1, further comprising:

exhausting residue from the ALD apparatus after the first high k-dielectric oxide film is formed; and

forming a second high k-dielectric oxide film on the first high k-dielectric oxide film by repeating steps (b) and (c).

3. The method of claim 1, wherein step (b) comprises:

supplying a first precursor having the first element to the ALD apparatus to absorb the first precursor on the semiconductor substrate;

exhausting residue from the ALD apparatus;

supplying a second precursor having the second element, which reacts with the first element, to the ALD apparatus; and

exhausting residue from the ALD apparatus.

4. The method of claim 2, wherein step (b) comprises:

supplying a first precursor having the first element to the ALD apparatus to absorb the first precursor on the semiconductor substrate;

exhausting residue from the ALD apparatus;

supplying a second precursor having the second element, which reacts with the first element, to the ALD apparatus; and

exhausting residue from the ALD apparatus.

5. The method of claim 3, wherein the first precursor is a composition of the first element and one of chlorine and fluorine.

6. The method of claim 5, wherein the second precursor is a composition of the second element and a ligand of hydrocarbon series having an electronegativity that is lower than that of the chlorine or fluorine.

7. The method of claim 6, wherein the ligand of hydrocarbon is $(CH_2\text{-}CH_2\text{-}\ldots\text{-}CH_3)_3$ or a composition whose partial H of $(CH_2\text{-}CH_2\text{-}\ldots\text{-}CH_3)_3$ is substituted for $(CH_2\text{-}CH_2\text{-}\ldots\text{-}CH_3)_3$.

8. The method of claim 1, wherein before the semiconductor substrate is loaded in the ALD apparatus, an oxidation barrier film is formed on the semiconductor substrate.

9. The method of claim 1, wherein the first element and the second element are hafnium and aluminum, respectively.

10. The method of claim 1, wherein the first high k-dielectric oxide film is an AHO($(Al_x,Hf_{1-x})O_y$) film.

11. The method of claim 2, wherein the first high k-dielectric oxide film is an AHO($(Al_x,Hf_{1-x})O_y$) film.

12. The method of claim 2, wherein the second high k-dielectric oxide film is formed of an AHO film.

13. The method of claim 10, wherein the second high k-dielectric oxide film is formed of an AHO film.

14. The method of claim 1, wherein a third high k-dielectric oxide film is further formed on the first high k-dielectric oxide film.

15. The method of claim 4, wherein the first precursor includes hafnium as the first element.

16. The method of claim 4, wherein the second precursor includes aluminum as the second element.

17. The method of claim 15, wherein the second precursor includes aluminum as the second element.

18. The method of claim 8, wherein the oxidation barrier film is formed of a rapid thermal nitride film or a silicon oxynitride film.

19. The method of claim 14, wherein the third high k-dielectric oxide film is formed of a dielectric film having a dielectric constant that is higher than that of an AHO film.

20. The method of claim 19, wherein the dielectric film having a dielectric constant that is higher than that of an AHO film is formed in a deposition apparatus other than the ALD apparatus.

21. The method of claim 9, wherein steps (b) and (c) are performed at the same temperature.

22. A capacitor of a semiconductor device, the capacitor comprising:

a lower electrode;

an AHO($(Al_x,Hf_{1-x})O_y$) film formed on the lower electrode; and

an upper electrode formed on the AHO film.

23. The capacitor of claim 22, further comprising an oxidation barrier film formed between the lower electrode and the AHO layer.

24. The capacitor of claim 22, further comprising a dielectric film having a dielectric constant that is higher than that of the AHO film between the upper electrode and the AHO layer.

25. The capacitor of claim 23, further comprising a dielectric film having a dielectric constant that is higher than that of the AHO film between the upper electrode and the AHO layer.

26. A method for manufacturing a capacitor of a semiconductor device, the method comprising:

(a) forming a lower electrode on a semiconductor substrate;

(b) loading the semiconductor substrate on which the lower electrode is formed in an ALD apparatus;

(c) depositing a reaction material having a predetermined composition rate of a first element and a second element on the lower electrode in the ALD apparatus;

(d) forming a first high k-dielectric oxide film having the two elements on the lower electrode by oxidizing the reaction material such that the first element and the second element are simultaneously oxidized;

(e) unloading the resultant structure where the first high k-dielectric oxide film is deposited from the ALD apparatus; and

(f) forming an upper electrode on the first high k-dielectric oxide film.

27. The method of claim 26, further comprising:

exhausting residue from the ALD apparatus after the first high k-dielectric oxide film is formed; and

forming a second high k-dielectric oxide film on the first high k-dielectric oxide film by repeating steps (c) and (d).

28. The method of claim 26, wherein step (c) comprises:

supplying a first precursor having the first element to the ALD apparatus to absorb the first precursor on the semiconductor substrate;

exhausting residue from the ALD apparatus;

supplying a second precursor having the second element, which reacts with the first element, to the ALD apparatus; and

exhausting residue from the ALD apparatus.

29. The method of claim 27, wherein step (c) comprises:

supplying a first precursor having the first element to the ALD apparatus to absorb the first precursor on the semiconductor substrate;

exhausting residue from the ALD apparatus;

supplying a second precursor having the second element, which reacts with the first element, to the ALD apparatus; and

exhausting residue from the ALD apparatus.

30. The method of claim 26, wherein before the semiconductor substrate is loaded in the ALD apparatus, an oxidation barrier film is formed on the lower electrode.

31. The method of claim 26, wherein the first high k-dielectric oxide film is an AHO layer.

32. The method of claim 27, wherein the first high k-dielectric oxide film is an AHO layer.

33. The method of claim 27, wherein the second high k-dielectric oxide film is an AHO film or a dielectric film having a dielectric constant that is higher than that of the AHO film.

34. The method of claim 28, wherein the first precursor includes hafnium and the second precursor includes aluminum.

35. The method of claim 26, before the upper electrode is formed, further comprising forming a third high k-dielectric oxide film on the first high k-dielectric oxide film.

36. The method of claim 35, wherein the third high k-dielectric oxide film is formed of a dielectric film having a dielectric constant that is higher than that of the AHO layer.

37. The method of claim 26, wherein step (d) is performed at a temperature of about 250℃ to 400℃.